# Introduction

## About me

- Specialized in electronic circuits and systems and in information and signal processing
- Master's thesis focused on research in the field of neuromorphic architectures based on spintronics (AI hardware)
- Sports, youth movements, teamwork, thirst of learning

## Education

- UCLouvain - Master [120]: Civil electrical engineer, specialization in electronic circuits and systems, information and signal processing
- UCLouvain - Bachelor's degree in engineering sciences, civil engineering orientation. Grade: Distinction

# Professional projects

2016-2021

## Delhaize, Match, VINÔ-etc

Different student jobs in various stores. Restocker and cashier.
First step into the professional world.

2021 (4m)

## Formyfit

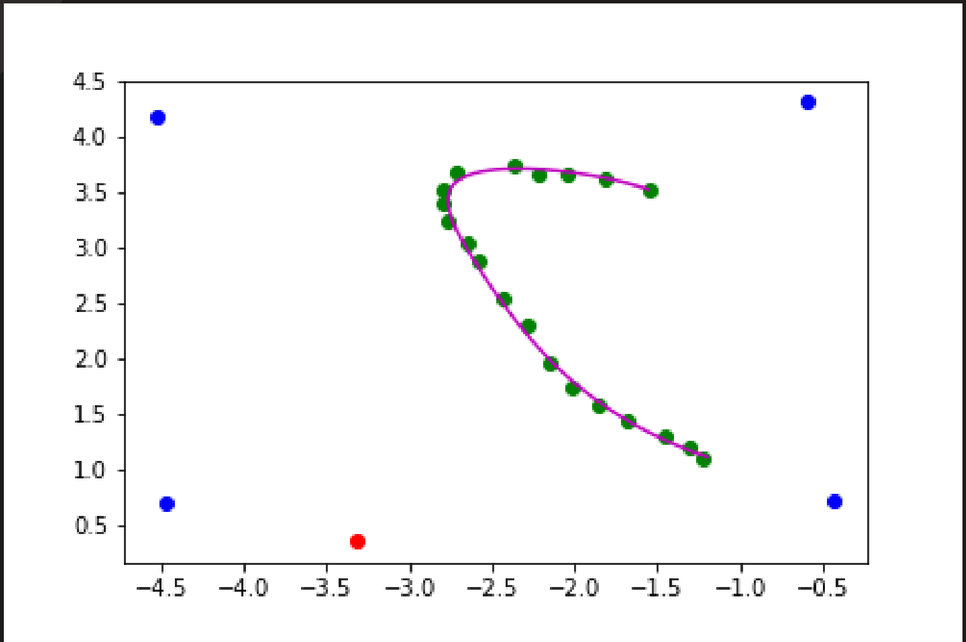
Programmer at Formyfit, a Belgian startup. My goal was to build a database of running race results using any method. I had chosen to work with Python.
Big solo project where I was autonomous. Developp programming skills.

2021-2024

## Private tutor

Self-employed as a private tutor in mathematics and physics at secondary/university levels. My goal is to help students to succeed.
Improves my communication and organisation.

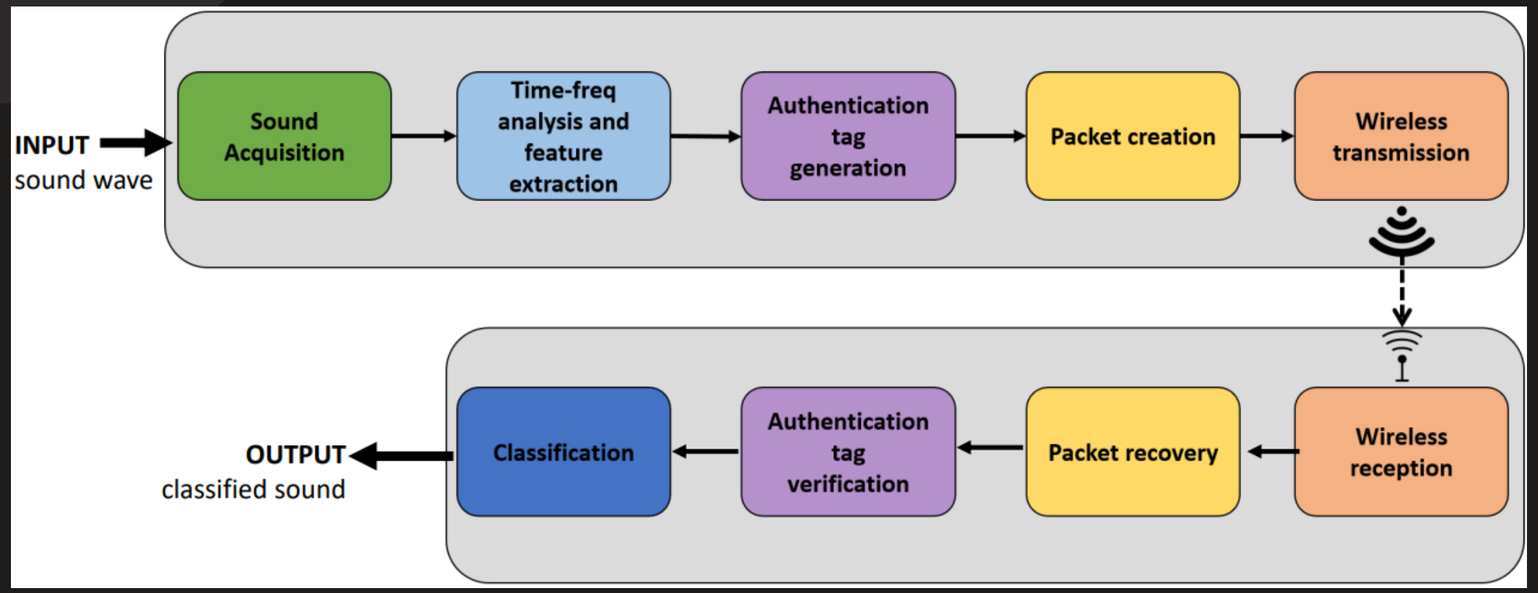
# Bachelor project




- Big improvement in my Python skills
- Understanding how waves move
- Team of 5

- Understanding how an ultra-wideband positioning system works
- Exploring techniques for estimating time differences of arrival with a multiple-antenna receiver
- Gain practical experience with circuits using professional equipment to access raw data
- Apply knowledge of antennas and diffraction to assess the link
- Validate experimental results using equipment available in the laboratory

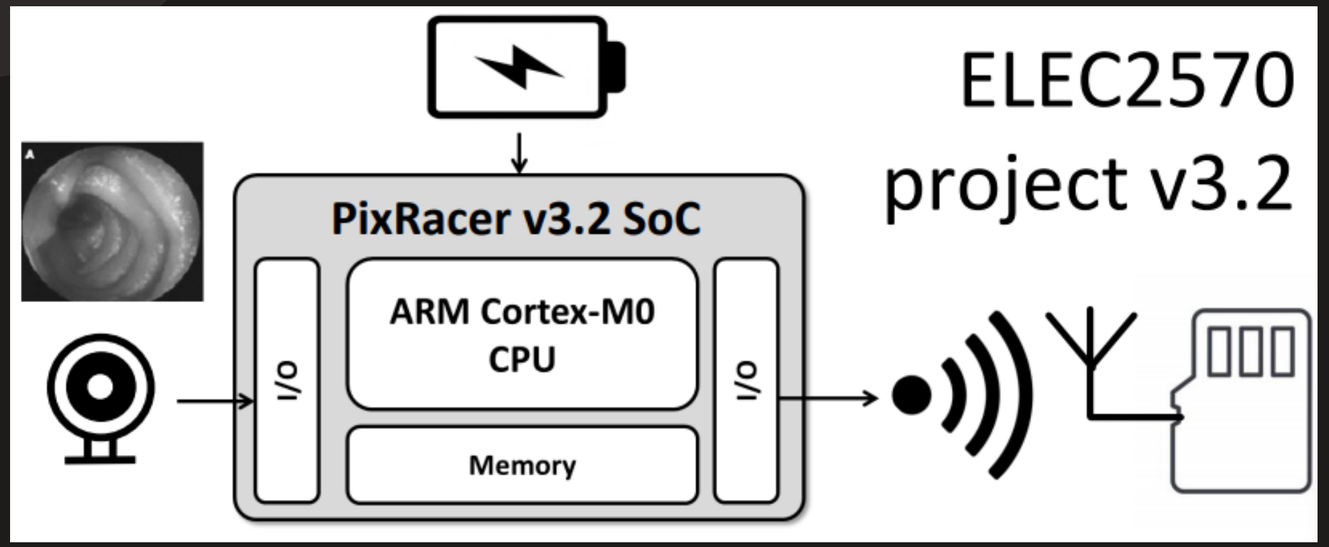
# Master project




- Phase 1: Understanding
- Phase 2: Optimization
- Team of 5

- Skills in programming, system architecture and resource management
- Expertise in embedded systems and communication technologies
- Advanced knowledge of signal processing (DSP), wireless communications and data security
- Practical experience in the design and optimisation of embedded systems for a variety of applications.

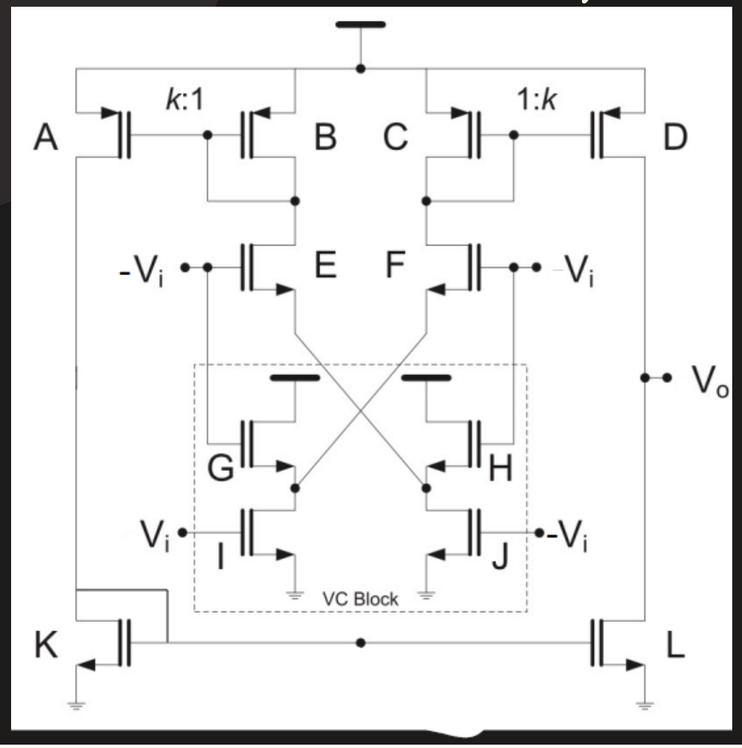
# Synthesis of digital integrated circuits project




- Application target: reach 3 Mpix/s ~ 2.5mW per CMOS imager starting from 5 kpix/s as baseline solution
- SystemVerilog, Git
- Team of 3

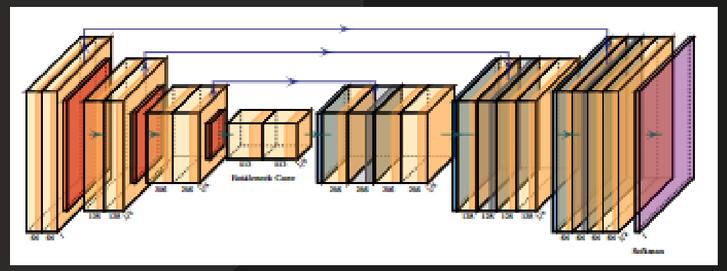
- Design and verification of embedded systems based on microcontrollers
- Robust Verilog coding for digital circuits
- Clock management, time constraints and size reduction in CMOS technologies
- Mastery of DSP architecture and hardware accelerators
- Knowledge of the ecological impact of the development of microelectronics

# Synthesis of analog integrated circuits project

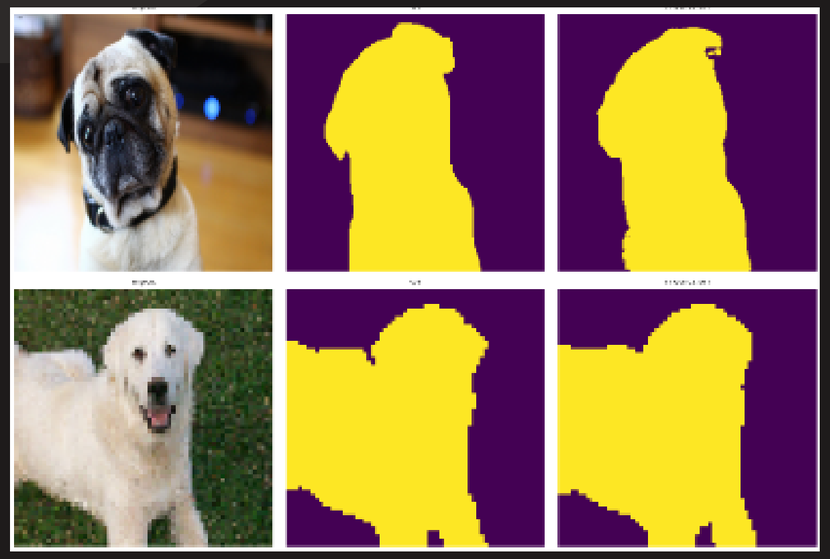



- Improving an OTA and designing its transistors using the gm/Id method
- Eldo
- Team of 2

- MOS transistor modelling for use in analog circuits
- Operational amplifiers and transconductance amplifiers
- Continuous filters, in particular MOSFET-C and gm-C filters
- Switched-capacitor filters, Switched-current circuits
- ADC/DAC converters
- Voltage or current controlled oscillators



# Image processing project



- Segmentation of dog and cat images using deep learning
- Great interest in this type of project
- Team of 3

- Mastery of machine learning/deep learning
- Expertise in classification methods
- Different representations of an image: pixels, Fourier transforms and multi-scale
- Basic image analysis tools: mathematical morphology and related tools
- Image segmentation, (spectral) clustering, watersheds and levelsets

# Current projects

**Master thesis: Spintronics-based nano-synapse for energy-efficient artificial intelligence (AI)**

Characterise a hardware neuron with a non-linear response and memory capacity. The aim is to build a neural network that is much more efficient than current ones.

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**Modeling and Implementation of analog and mixed analog/digital circuits and systems on chip**

At each stage of the project we are presented with a bottleneck and we have to analyse the problem and find the most effective solution.

# Languages and skills

**English**
Good comprehension but poor oral communication. This is a point I hope to improve on at the start of my professional career.

**Dutch**
Learnt at school but stopped practising 6 years ago.

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**Applications and computer languages**
LTSpice, Eldo, Cadence, COMSOL, Python, C, Java, Verilog-AMS, SystemVerilog, LaTeX, Git